



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,347	08/03/2006	Verena M.T. Thiede	63573A	7117
109 7590 04/02/2009 The Dow Chemical Company Intellectual Property Section P.O. Box 1967 Midland, MI 48641-1967				
EXAMINER LEONARD, MICHAEL L.				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
04/02/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/588,347

Applicant(s)

THIEDE, VERENA M.T.

Examiner

MICHAEL LEONARD

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

****It has been noted that claim 21 is cancelled.**

Response to Arguments

Applicant's arguments filed 1/23/2009 have been fully considered but they are not persuasive. The argument stating that neither Bohne nor Waddington discloses prepolymers based on the polyol composition of the disclosure is not persuasive. For instance, Waddington did disclose prepolymers made from the polyether polyols and the amine initiated polyols (Column 8, lines 6-19). Waddington further disclosed and was previously mentioned that the polyether polyols are made from certain levels of ethylene oxide. Waddington further discloses that the selection of the polyol with the appropriate hydroxyl number, level of ethylene oxide, functionality and equivalent weight are standard procedures known to those skilled in the art. For example, polyols with a high level of ethylene oxide will be hydrophilic and may be more prone to catalyze the water-isocyanate or urea reaction, while polyols with a high amount of propylene oxide will be more hydrophobic and will favor the urethane reaction (Column 6, lines 20-30). Furthermore, because Waddington is interested in making polyurethane foams wherein the blowing agent is water, it would have been obvious for Waddington to use polyether polyols with high levels of ethylene oxide (Column 9, lines 25-30). Waddington further discloses that the polyol is made by the addition of one alkylene oxide (EO, PO, or BO) (Column 6, lines 37-45).

Furthermore, Bohne discloses a liquid NCO prepolymer having a maximum NCO content of 15% by weight produced by the reaction of TDI, a polyether polyol, and at

least one aminopolyether polyol in an amount of 0.5 to 100 mol% with respect to the polyol component (Abstract).

Both Waddington and Bohne disclose polyol composition containing at least 50% by weight of aminopolyether polyols in conjunction with polyether polyols. Thus the combination of Bohne and Waddington reads on the present invention.

As a result, the rejection stated below stands as is.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over WO01/58976 to *Waddington et al.* (The column and page numbers recited in the detailed action are from the English language equivalent U.S. Patent No. 6,762,274 to *Waddington et al.* (*Waddington*)) in view of U.S. Patent No. 6,032,412 to *Bohne et al.*

As to claims 1-6, and 14-16 *Waddington* discloses the process for the production of a polyurethane product by reacting in stoichiometric excess of polyol, a polyisocyanate (Column 3, lines 57-60) wherein the polyisocyanate is aliphatic or aromatic (Column 8, lines 14-15), more preferably 2,4'- and 4,4'-mixtures of methylene diphenylisocyanate or blends of toluene-2,4' and 2,6-diisocyanates with a polyol composition comprising 0 to 95 percent by weight of a polyether polyol compound

having a functionality of 2 to 8 (b1) (Column 3, lines 15-17), from 5 to 100% by weight of at least one polyol compound having a functionality of 1 to 8 (b2) (Column 3, lines 18-20) wherein the weight percent is based on the total amount of polyol component b1 and b2 (Column 3, lines 21-23). Waddington further discloses that the one of the polyols are obtained by alkoxylation of at least one initiator molecule of the formula:



Where n and p are independently integers from 2 to 6, A at each occurrence is independently oxygen, nitrogen, or hydrogen, with the proviso that only one of A can be hydrogen at one time, R is a C1 to C3 alkyl group, m is equal to 0 when A is hydrogen, is 1 when A is oxygen and is 2 when A is nitrogen or alkyl amine of a C1 to C3 alkyl chain (Column 3, lines 25-35). The initiator molecule is 3,3'-diamino-N-methyldipropylamine (Column 7, lines 39-40). Waddington further discloses that the remainder of the polyol is polyether polyols prepared by adding an alkylene oxide to an molecule having from 2 to 8 active hydrogen atoms and a molecular weight from 2,000 to 10,000 (Column 5, lines 45-55). The selection of the polyol with the appropriate molecular weight, level of ethylene oxide is standard procedures known to those skilled in the art. For example, polyols with a high level of ethylene oxide will be hydrophilic and may be more prone to catalyze the water-isocyanate reaction (Column 6, lines 22-28).

Waddington does not expressly disclose the isocyanate content of less than 15 weight percent.

Bohne et al. discloses mixing a liquid NCO prepolymer having a maximum NCO content of 15% by weight, more preferably 3 to 10% by weight by reacting a polyether polyol of average molecular weight of 250 to 12,000 g/mol (Column 2, lines 19-20) to form a polyurethane composition.

Waddington and Bohne are analogous art because they are from the same field of endeavor with respect to polyurethane compositions using polyols of the same molecular weight and equivalent isocyanates.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a liquid NCO prepolymer having a maximum NCO content of 15% in Waddington's experiment because they both used the same polyol composition, isocyanate and they both are applying the polyurethane compositions to a substrate for coating (Waddington, Column 20, line 57-60) or molded bodies for humus-containing plant substrates (Bohne, Column 5, lines 22-25). Waddington discloses that higher %NCO prepolymers have a higher reactivity with regards to disturbances or variations caused by natural variations in the compositions of the certain substrates (Column 1, lines 45-50). The lower %NCO prepolymers would be less likely to react with the coated substrates or the humus-containing plant substrates (Waddington, Column 2, lines 2-6).

As to claims 7-13, Waddington discloses wherein the A-term in the above formula at each occurrence is nitrogen (Column 7, lines 25-27) and the compound is represented by 3,3'-diamino-N-methyldipropylamine or 2,2'-diamino-N-methyldiethylamine. Waddington further discloses that the A in the formula above at

each occurrence is oxygen (Column 7, lines 10-12) or wherein one A in the formula above is oxygen and the other A is nitrogen (Column 7, lines 33-36) and the formula is represented by N-(2-hydroxyethyl)-N-methyl-1,3-propanediamine (Column 7, lines 39-40). Waddington further discloses that the polyol is derived from a compound which contains an alkyl amine within the polyol chain or a di-alkyl amino group pendant to the polyol chain, which corresponds to the formula presented in claim 1 of the application (Column 3, lines 35-39).

As to claims 17-19, Waddington discloses a hydrophilic polyurethane polymer by bringing together a blowing agent such as water (Column 4, lines 9-10) and capping the polyether polyols with ethylene oxide in various amounts to make the polymer more hydrophilic (Column 6, lines 21-25).

As to claim 20, Waddington fails to disclose a horticultural growing medium comprising the isocyanate composition and at least one filler material.

Bohne discloses a humus containing plant substrate obtained by slurring a humus-containing plant substrate in water, mixing a liquid NCO prepolymer with polyether polyol component containing at least one aminopolyether polyol in amount of 0.5 to 100 mole% with respect to the polyether polyol (Column 5, lines 23-30).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LEONARD whose telephone number is (571)270-7450. The examiner can normally be reached on Mon-Fri 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/588,347
Art Unit: 1796

Page 8

/MICHAEL LEONARD/
Examiner, Art Unit 1796

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796